been proposed for the 9th Plan period from various non-conventional energy sources such as wind, small hydro, biomass and solar energy. An investment of about Rs. 14,000 crore will be required for the establishment of this capacity. The Ninth Plan physical and financial targets are yet to be finalised.

New Technology for Wind Generators

540. SHRI VEDPRAKASH P. GOYAL: Will the Minister of NON-CONVENTIONAL ENERGY SOURCES be pleased to state:

(a) whether Government are aware that the tripping of each of the five 210 MW units of the Tuticorin Thermal Power Station on 30th May, 1997 turned the spot light on the need for new technology for wind generators;

(b) if so, whether Government have made any study in this regard;

(c) what are the details of the study made alongwith results thereof;

(d) whether it is a fact that Government of India had a technical consultancy agreement with a European firm in the field of wind energy;

(e) the details of the projects installed on their advice and in pipelines; and

(f) the performance reports of the projects already completed with details?

THE MINISTER OF STATE OF THE MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES (CAPT. JAI NARAYAN PRASAD NISHAD): (a) The tripping of the five units of the Tuticorin Thermal Power Station cannot alone be attributed to the operation of wind electric generators installed in the area. The Southern grid tripped on account of the overloading of the system and typical under frequency grid conditions. The wind electric generators which were already connected to the grid while generating active power continued to draw the reactive power required for their operation. The Tuticorin Thermal Power Station would have tripped in cascade since it could not supply the reactive power requirement of wind farms along with other loads connected to it, although it was augmented by power generated by the wind farms. With the introduction of power factor compensators, or variable speed operation for active and reactive power control, the reactive power requirement of wind electric generators can be minimised.

(b) and (c) An R&D project has been taken up for suitable modifications in wind electric generators using induction generators, which will enable the reactive power requirements of such machines to be minimised. Tamil Nadu Electricity Board have also taken up a Study by Anna University on remedial measures for excessive drawal of reactive power by such wind electric generators. The Study has not so far been completed. Meanwhile, several interim measures have taken to improve the power factor and minimise reactive power drawal from the grid.

(d) No, Sir.

(e) Does not arise.

(f) An aggregate wind power capacity of about 900 MW has been installed in the country. Over 2 billion units have so far been fed to the grid from these projects. By and large, the performance of the wind power projects has been found to be satisfactory.

Setting up Asia's Largest Solar Plant Project at Kalyanpur

541. SHRI SUSHIL KUMAR SAMBHAJIRAO SHINDE: SHRIMATI VEENA VERMA:

Will the Minister of NON-CONVENTIONAL ENERGY SOURCES be pleased to state:

(a) whether wind and solar energy is projected to be harnessed with a view to substantially diversify and conserve the conventional energy resources;